

DESCRIPTION OF A NEW WESTERN-EUROPEAN *TACHYDROMIA*
SPECIES (DIPTERA: HYBOTIDAE) OF THE *TACHYDROMIA*
CONNEXA-GROUP

S.M. HEWITT

Tullie House Museum, Castle Street, Carlisle CA3 8TP.

M. CHVÁLA

Department of Zoology, Charles University, Prague, Czech Republic.

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Abstract: A new species of *Tachydromia*, belonging to the *T. connexa*-group and most closely related to *T. tuberculata* (Loew), *T. elbrusensis* Chvála and *T. costalis* (von Roser), is described from the River Eden in the north west of England. *Tachydromia edenensis* sp.n. is found on the middle reaches of the River Eden, where it actively runs and readily flies short distances on sandy shingle banks.

INTRODUCTION

On 28.vi.2000 SMH collected a small series of an undescribed species of *Tachydromia* (Meigen) belonging to the *T. connexa*-group from a shingle bank on the River Eden at Temple Sowerby, Cumbria (NY605277). This area of fine to medium-grade shingle forms a point bar on a bend of the river at an altitude of 100 m (Fig. 8). Towards the top of the shingle bank an area of sand with some pebbles is deposited (Fig. 9). The specimens were collected from the area of sand and scattered pebbles and were not noticed elsewhere on the shingle bank. Individuals of this species appeared decidedly quicker and more ready to fly than specimens of other *Tachydromia* species also present. On 3.vii. SMH returned to the location in the company of J.B. Parker and the species was found to be present in some numbers. Again specimens were restricted to the area of sand and scattered shingle.

The same day a visit was made to an area of similar sandy shingle some 25 km upstream at Great Musgrave on the Swindale Beck, where it joins the River Eden (NY771133) at an altitude of 150 m. Here too the new species was found to be plentiful. Again it was restricted to the sandier areas of the shingle bank, usually with some pebbles present, but some individuals were also noticed on patches of pure sand. The new species was again seen at Great Musgrave on the 15.vii but was not found at either site on subsequent visits during August and September.

Other species of *Tachydromia* collected at both sites were *T. morio* (Zetterstedt), *T. acklandi* Chvála, *T. halidayi* (Collin) and *T. aemula* (Loew). In addition, *Stilpon mbilis* Collin was present in numbers on vegetated sand at Temple Sowerby and *T. costalis* (von Roser) was identified from Great Musgrave.

These two sites are situated in the middle reaches of the River Eden, which is a spate river some 90 km long flowing north through Cumbria. The site at Great Musgrave is actually on the Swindale Beck where it joins the River Eden rather than the main river. Rising on the Pennine moors of the Yorkshire/Cumbria border the Eden flows over Carboniferous limestones in its upper reaches before cutting across the Permian and Triassic sandstones of the middle and lower Eden Valley and finally emptying into the Solway Firth north west of Carlisle. The Eden with its tributaries is a Site of Special Scientific Interest, being regarded as an outstanding northern river on sandstone and hard limestone. It has one of the most diverse aquatic plant floras

of any river in Britain and is recognised to be of significant interest for invertebrates associated with river shingles (English Nature, 1997).

TACHYDROMIA EDENENSIS SP.N.

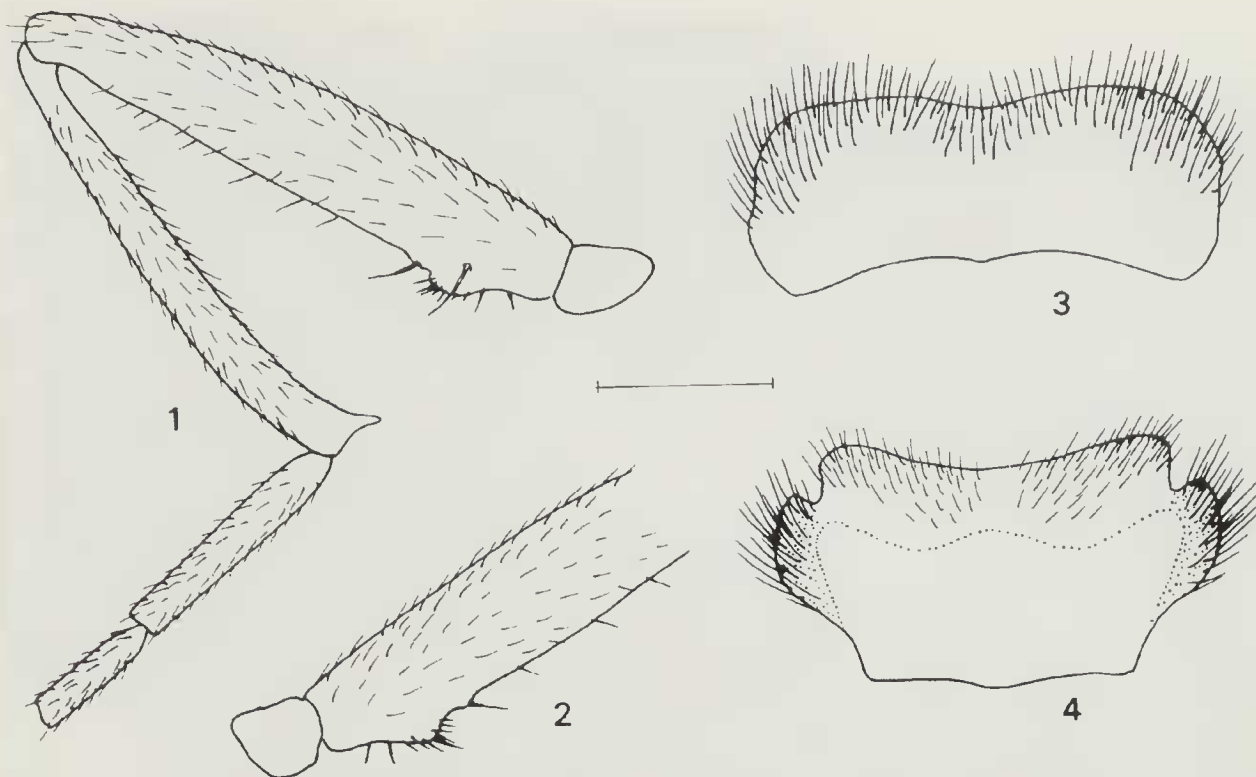
A species of the *Tachydromia connexa*-group with a similar wing pattern to *T. tuberculata* (Loew) and *T. costalis* (von Roser), differing from both of them by the extensively yellowish legs with dark annulated tarsi, shining black occiput and dorsum of abdomen in both sexes, and the very distinctive male genitalia.

Male. Frons narrow, as wide below as anterior ocellus and slightly widening above, entirely shining black including vertex. Occiput with only a small greyish area just above neck, which narrowly extends and broadens to level of base of post-verticals, otherwise uniformly polished black. A pair of black anterior ocellar bristles slightly shorter than a pair of widely separated postvertical bristles, otherwise occiput clothed with a few scattered fine black hairs. Antennae brownish-yellow on the globular 2nd segment, 3rd segment blackish, pointed, only slightly longer than deep; the slightly supra-apical arista scarcely twice as long as antenna. Palpi blackish, covered with minute adpressed dark hairs and a long black terminal bristle about as long as palpus.

Thorax polished black, only prothorax below humeri, and metathorax (metapleuron) including hypopleura (katepimeron) densely silvery-grey dusted. Large thoracic bristles black, confined to 2 notopleurals (the anterior one much smaller and finer), 1 postalar and a pair of usually crossing scutellars with a small hair on either side. Mesoscutum almost bare with only an indication of small uniserial dorsocentrals in a form of small paler points.

Wings large, apically rounded with the brownish to somewhat brownish-grey pattern of the *T. tuberculata-costalis* complex, i.e. the dark crossbands broadly connected along costal margin right up to cell R5 (submarginal cell), the hyaline mid-stripe almost invisible, the posterior half of wing mostly faintly greyish, leaving only both basal cells (cells BR and BM) and a patch beyond the apical section of vein Cu quite clear (Fig. 10). Halteres whitish with base of stem brownish.

Legs rather slender and apparently longer than in both *T. costalis* and *T. elbruseusis* Chvála, resembling more *T. tuberculata*. Legs extensively yellowish on coxae, femora and base of tibiae. Femora with a brownish longitudinal streak above, more distinct on outer face of hind femora which, viewed from the side, have only base and tip yellow; tibiae extensively darkened towards tip, but tarsi again paler and broadly blackish annulated; at least base of all tarsal segments yellowish. Fore femora not very swollen, with only an anteroventral row of very small black bristly hairs. Mid femora almost equally stout, but ventrally with a double row of similar short black bristles and with a small round spinose swelling near base (Fig. 1 & Fig. 2). Hind femora longer and more uniformly slender, covered with only minute pubescence, no longer hairs or bristles. Fore tibiae and basitarsi almost bare (those of *T. costalis* and *T. elbruseusis* have long, ventral pubescence) and only slightly spindle-shaped. Middle tibiae slender, in the middle two-thirds of their length with a ventral row of small, black, spine-like bristles and a small shovel-like apical projection (Fig. 1), which is larger than in *T. tuberculata* but smaller than in *T. costalis*. Hind tibiae almost bare, very slender on basal half, then slightly broadened and curved towards tip, posteriorly with a distinct terminal comb of brownish spines. Tarsi fairly long, especially the basitarsi, which are on all pairs about twice as long as the 2nd tarsal segment.

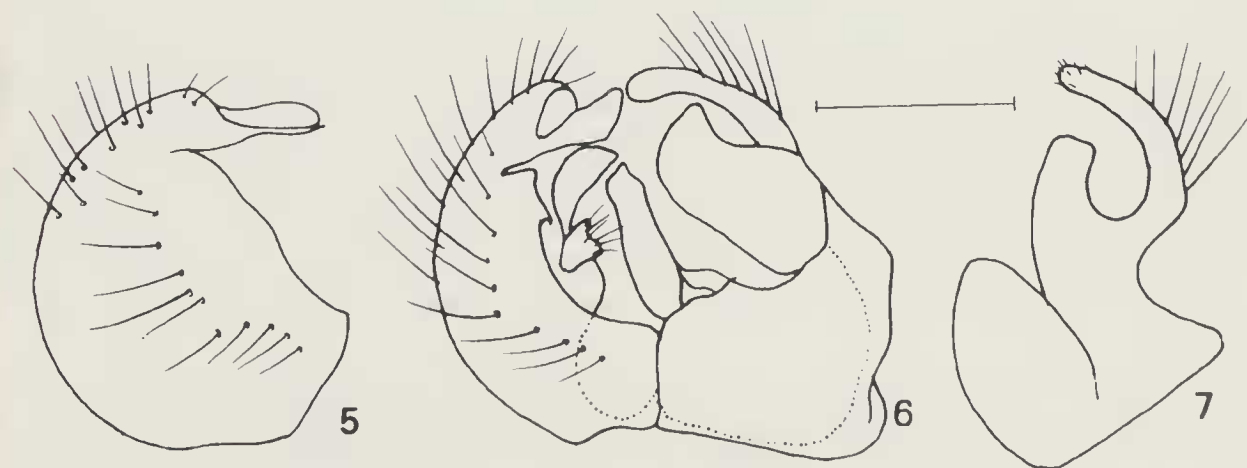


Figs 1-4. *Tachydromia edenensis* ♂ 1. Middle leg, anterior view, 2. Base of mid femur, posterior view, 3. 6th tergum, 4. 6th sternum scale 0.2 mm.

Abdomen extensively shining black both above and below, terga finely dark-grey pollinose along anterior margins, pubescence fine and sparse, dark. Tergum 6 with uniformly long blackish-brown pubescence along posterior margin (Fig. 3), the corresponding sternum (Fig. 4) with shorter pubescence along the wide apical margin, but there are broad lateral lobes turned upwards and covered with long black bristling. Genitalia (Figs. 5-7) large and globose, very characteristic in having only a simple dorsal process on the right lamella (Fig. 5), simple naked cerci (Fig. 6), and a curiously long and slender posterior projection on the left lamella (Fig. 7): the whole lamella is quite bare except for an outer row of long bristles on the posterior projection and some microscopic hairs around the apex.

Length: body 1.8-2.2 mm, wing 2.1-2.3 mm (holotype body 2.2 mm, wing 2.3 mm).

Female. Head, thorax and wings as in male, but antennae almost uniformly blackish.



Figs 5-7. *Tachydromia edenensis* ♂ genitalia. 5. Right lamella of epandrium, 6. Epandrium and cerci, 7. Left lamella of epandrium.



Fig. 8. Type locality: shingle point bar on the River Eden at Temple Sowerby.

even on 2nd segment. Legs with a tendency to be darker, more brownish-yellow on the pale parts, also tarsi darker and the annulations less distinct. The structure and bristling of legs very much as in the male; except for the mid legs where the femur is without the ventral spinose tubercle near base and the ventral bristles become longer towards base, ending in a pair of black bristly hairs nearly as long as femur is deep; also the mid tibia lacks the apical projection. Tarsi as in male, although hind tarsus longer—the 2nd tarsal segment being two-thirds the length of basitarsus. Abdominal segments 1–5 extensively polished black and almost bare as in male, apical three visible segments are narrowed and, including cerci, dull grey.

Length: body 2.2–2.6 mm, wing 2.2–2.3 mm.

Differential diagnosis. *Tachydromia edenensis* sp.n. has already been mentioned by Chvála (1970: 480), on the basis of a single male in the Loew Collection in Berlin Museum, as an “undescribed species” close to *T. tuberculata*. The differences given in that text (shining occiput, yellow legs with distinctly black annulated tarsi, fore femur with a single anteroventral row of minute dark hairs, 6th tergum with a row of long brownish hairs and with a brush of shorter black hairs at sides—actually on 6th sternum) may well be accepted as the main differential features for this new species. The ventral spinose tubercle on middle femur in male of *T. edenensis* resembles more that of *T. costalis* or *T. elbrusensis* (see Chvála 1970, Figs 59, 62) but the shallow distal excavation is missing. On the other hand, the above two species have long ventral pubescence on the fore tibiae and basitarsi in the male, and the legs are generally shorter; in both of them the male mid-basitarsus is as long as the following tarsal segment (twice as long in *T. edenensis*). The wing pattern in *T. edenensis* is almost exactly the same as in *T. costalis* (see Chvála 1970,



Fig. 9. Type locality; detail of the sand/shingle substrate.

Fig. 58). The other very good distinguishing feature is the bristling of the 6th abdominal segment; the tergum in *T. edenensis* (Fig. 3) is covered along the posterior margin with equally long dense pubescence on its whole length, and the sternum possesses curious lateral lobes covered by dense black bristling. However, the most decisive differential feature is the structure of male genitalia, which are made very distinctive by the almost bare left genital lamella with a curious long posterior appendage (Fig. 7). Male genitalia of the closely related species *T. tuberculata*, *T. costalis* and *T. elbrusensis* were fully illustrated by Chvála (1970, Figs 57, 60 and 63 respectively), those of *T. costalis* also by Collin (1961: 88, Fig. 40, under *Sicodus subnutorio* Collin).

Holotype: ENGLAND. Male; River Eden, Temple Sowerby, Cumbria, NY605277; 3.vii.2000; S.M. Hewitt (Tullie House Museum, Carlisle).

Paratypes: ENGLAND. Male and female; Swindale Beck, Great Musgrave, Cumbria, NY771133; 3.vii.2000; S.M. Hewitt (Collection of M. Chvála, Charles



Fig. 10. *Tachydromia edenensis*; wing.

University, Prague). Male and female; Swindale Beck, Great Musgrave, Cumbria, NY771133; 3.vii.2000; S.M. Hewitt (National Museums and Galleries on Merseyside). Female; River Eden, Temple Sowerby, Cumbria, NY605277; 3.vii.2000; S.M. Hewitt (Tullie House Museum, Carlisle). Male; Swindale Beck, Great Musgrave, Cumbria, NY771133; 3.vii.2000; S.M. Hewitt and female; River Eden, Temple Sowerby, Cumbria, NY605277; 3.vii.2000; leg S.M. Hewitt (British Museum (Natural History), London). Male and female; River Eden, Temple Sowerby, Cumbria, NY605277; 3.vii.2000; S.M. Hewitt (Royal Scottish Museum, Edinburgh). **Additional material:** A single male of *Tachydromia edenensis* is in the Loew Collection, Berlin Museum (Chvála *op. cit.*); the data label is indecipherable, although the specimen is likely to be from Germany/Austria.

Etymology: This species is named after the River Eden in Cumbria, where the Holotype was collected.

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